

What is claimed is:

1. A sliding motion structure for a concrete pump which extrudes concrete by using concrete pistons moving  
5 back and forth in a pair of concrete cylinders and discharges the extruded concrete through a shaking S-shaped gate valve, comprising:

a plane fixed member including a wear plate which is connected to the ends of the concrete cylinders and has a  
10 pair of throughhole portions connected to the insides of the concrete cylinders; a pair of coupling tubes which are connected with the wear plate along the throughhole portions and have inlet ports; first friction members which are formed of tungsten carbide and connected to the upper  
15 surface of the coupling tubes; and a second friction member which is formed of tungsten carbide and connected on the upper surface of the wear plate between the throughhole portions in the same height as the first friction members; and

20 a ring-shaped movable member including a ring-shaped connecting pipe which is connected to the ends of the S-shaped gate valve and a third friction member which is formed of tungsten carbide and connected to the first and second friction members tightly along the ends of the  
25 connecting pipe in the same length.

2. The sliding motion structure as recited in claim 1, wherein the coupling tubes of the fixed member are provided with a protrusion that is formed downwards along  
30 the internal circumference area of the lower part of the coupling tubes, the protrusion guiding the coupling tubes to the upper part of the throughhole portions of the wear plates.

35 3. The sliding motion structure as recited in claim 1, wherein the coupling tubes of the fixed member are

provided with a standard protrusion that is formed upwards along the external circumference area of the upper part of the coupling tubes, the standard protrusion guiding the connection between the coupling tubes and the first friction members.

4. The sliding motion structure as recited in claim 1, wherein reinforce members are inserted to the internal walls of the coupling tubes of the fixed member and the internal wall of the connecting pipe of the movable member.

5. The sliding motion structure as recited in claim 4, wherein the coupling tubes of the fixed member are provided with catching protrusions formed inwards horizontally along the internal circumference of the upper part of the coupling tubes, the catching protrusions limiting the upward insertion of the reinforce members.

6. The sliding motion structure as recited in claim 1, wherein the wear plate of the fixed member is connected to the ends of the concrete cylinders by a holder which is fixed by bolts on the ends of the concrete cylinders and holding the circumference area of the wear plate.

7. The sliding motion structure as recited in claim 1, wherein the wear plate of the fixed member is connected to the ends of the concrete cylinders by bolts which are fixed on bolt fixing holes penetrating the circumference of the wear plate.

8. The sliding motion structure as recited in claim 1, wherein a connecting member is connected to the lower part of the second friction member; and the second friction member with the connecting member is connected with the wear plate by utilizing a plurality of bolts penetrating the wear plate and fixed to the connecting member.

9. The sliding motion structure as recited in claim 1, wherein a connecting member is connected to the lower part of the second friction member and a subsidence is formed on the surface of the wear plate between the first friction member s; and the second friction member with the connecting member is connected with the wear plate by utilizing a plurality of bolts penetrating the subsidence of the wear plate and fixed to the connecting member.

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10. The sliding motion structure as recited in claim 1, wherein the external end of the third friction member is bent downwards in the form of embracing the friction surface and external surface of the connecting pipe so that the third friction member has a cross section of a "7" shape.

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11. The sliding motion structure as recited in claim 1, wherein the friction members are formed of combinations of friction blocks.

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12. The sliding motion structure as recited in claim 1, wherein the tungsten carbide that forms the friction members is wear-resistant alloy containing 80 to 90% WC, 2 to 25% TiC, 5 to 10% TaC and 3 to 10% TaNBC.

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13. A method for manufacturing a sliding motion structure for a concrete pump, comprising the steps of:

a) fabricating a wear plate with a pair of throughhole portions connected to the insides of a pair of concrete cylinder;

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b) fabricating coupling tubes having inlet ports to be tightly inserted to the throughhole portions of the wear plate;

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c) connecting first friction members which are formed of tungsten carbide to the upper part of the coupling

tubes;

d) connecting the coupling tubes combined with the first friction members to the throughhole portions of the wear plate, the first friction members being protruded to the upper part of the wear plate;

e) fabricating a second friction member with tungsten carbide and inserting the second friction member between the first friction members in the wear plate;

f) connecting a connecting member to the lower part of the second friction member, the upper surfaces of the first and second friction members are on the same plane; and

g) connecting the connecting member combined with the second friction member to a part of the wear plate between the first friction members, the upper surfaces of the first and second friction members are on the same plane.

14. The method as recited in claim 13, further comprising a step h) of connecting the wear plate combined with the first and second friction members to the ends of the concrete cylinders after the step g).

15. The method as recited in claim 13, further comprising a step i) of inserting reinforce members into the coupling tubes and fixing the reinforce members tightly on the internal wall surface of the coupling tubes, the step i) performed between the steps c) and d).